BIOMONITORING IN RI

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A quarterly newsletter published by the Rhode Island Department of Health (HEALTH) to provide information on trends and issues regarding environmental chemicals and biomonitoring activities in Rhode Island.

HEALTH Plans for Biomonitoring Implementation

By Dhitinut Ratnapradipa and Mike DiMatteo

As introduced in the previous newsletter, HEALTH Laboratories has entered into a consortium agreement with Connecticut, Maine and Vermont for the purpose of applying for the Centers for Disease Control and Prevention Biomonitoring Implementation Grant. The consortium, called the New England Four Biomonitoring Consortium (NE4BC) is working to develop a proposal for the grant, due on July 2, 2003.

The proposal seeks to implement state laboratory-based biomonitoring programs to assess human exposure to environmental chemicals, help prevent diseases induced from chemicals exposure, and determine estimates of background exposure. Funds will be used to conduct demonstration projects, purchase equipment, and hire and train personnel. The planned NE4BC activities are as followed:

Year 1: RI will collect approximately 7000 cord

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NE4BC Selects Diverse Chemicals for Study Plans

By Dhitinut Ratnapradipa and Mike DiMatteo

Have you ever wondered which environmental chemicals have an affect on human health? The biomonitoring planning programs in several of the participating consortium States have conducted need assessments over the past 2 years, and have selected a wide range of chemicals to study.

- *Mercury* can lead to neurodevelopmental effects in offspring. Sources may include eating certain fish, working in particular jobs (where mercury is used), and using mercury in rituals.

- *Lead* is a naturally occurring metal that is dispersed throughout the environment. Lead exposures may occur as a result of renovation of homes containing lead-based paint, primary and secondary occupational exposure, and others. While lead exposure can cause a variety of adverse effects, the most significant ones are neurobehavioral and developmental in nature.

- *Uranium* can cause cancer and kidney disease, while *arsenic* has been associated with cancer and skin lesions. Both are naturally occurring in high concentrations in groundwater in parts of New England. Arsenic was also used in some pesticides and until recently was used as a wood preservative in many commercial wood products.

- *Cadmium* is found in the environment, and can enter into the food chain. Sources may include human activities such as mining and combustion. Cadmium may have developmental effects such as

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blood specimens from several area hospitals. CT, ME, VT will seek partners in their States for collecting specimens, and ship representative samples to RI by the year's end. RI will purchase equipment, hire staff, and design a laboratory unit to perform analyses for mercury, cadmium and lead.

All States will begin/continue planning and coordinating activities for other proposed consortium projects. These include: 1) Vermont - Uranium testing in urine or other sources in exposed populations. 2) Connecticut - Cotinine testing in cord blood. 3) Maine - Phthalates testing in urine or blood.

Year 2: RI will continue testing cord blood specimens for mercury, cadmium, and lead. Vermont will purchase equipment, hire staff and begin its uranium project. Consortium States will contribute specimens as outlined in planning activities from Year 1.

Year 3: Connecticut will purchase equipment, hire staff and begin its Cotinine project. Consortium States will contribute specimens as worked out in planning activities from Years 1 and 2. Specimens may be included from populations other than those from cord blood.

RI will continue with its mercury project but may expand to other populations, such as ritual users of mercury, fishing families, or others, while still doing some cord blood sampling. The VT uranium project will continue, but may also expand to include arsenic and tungsten testing in urine, if planning is developed as such.

Year 4: Maine will purchase equipment, hire staff, and begin its phthalates project. Consortium States will contribute specimens as worked out in planning activities from previous years. The consortium will generate a regional exposure report for all of the chemicals under study.

All of the consortium projects are under development and therefore, subject to change pending grant funding. Grant applications are due in July, and recipients will be notified in August, with Year 1 of the grant beginning in September. For more information about this grant application, please visit the CDC website at **www.cdc.gov/od/pgo/funding /03034.htm** ✦

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low birth weight.

- *Cotinine* is a marker for nicotine, a harmful chemical in cigarette smoke. Cotinine reflects exposure to smoking and environmental tobacco smoke (ETS). The adverse health effects of smoking are well known, and a growing body of evidence is showing the harmfulness of ETS.

- *Phthalates* are plasticizers that are widely distributed in products such as food packaging, cosmetics, toys, and auto interiors. They are also used in many medical procedures, such as dialysis, blood transfusions, and delivery of intravenous fluids. In animal studies, phthalates have been found to cause serious reproductive and developmental effects. ✦

National Biomonitoring News

Biomonitoring legislation in California

The California Senate has created a bill to establish a 3-year biomonitoring pilot program. The program would test a variety of human specimens to determine levels of toxic pollutants, such as heavy metals, pesticides, and other chemicals. The study results will be used to evaluate pollution regulation and set new priorities to reduce internal pollutants. A 1-cent sales tax increase on tobacco products would be used to fund the project. (APHL, E-update May 22, 2003)

Mercury studies

In a recent study, it was shown that adults who regularly eat fish contaminated with methyl mercury might experience adverse neurocognitive effects. For more information, see www.ehjournal.net

In a separate study, conducted in the Seychelles Islands, researchers reported that regular consumption of mercury-containing fish did not correlate to adverse neurocognitive development in children. For more information, see www.thelancet.com